

**Work Plan – Abandonment of Monitor Wells**

**Associated with Release 562, Facility ID 44-08921 (TID 27669),**

**Work Plan # 34976**

Colstrip Steam Electric Station

Colstrip, Montana

Prepared for:

**Talen Montana, LLC**

**P.O. Box 38**

**Colstrip, Montana 59323**

Prepared by:

**Hydrometrics, Inc.**   
Consulting Scientists and Engineers

Billings, MT 59102

December 2024

On behalf of Talen Montana, LLC (Talen), Hydrometrics prepared this work plan and budget in accordance with Montana Department of Environmental Quality (DEQ) for AC-08. This work plan and budget was requested in a letter from DEQ to Talen dated November 25, 2024. Specifically, the letter indicated the work plan must include the following:

- Complete a DEQ AC-08 form indicating you elect to maintain or abandon wells according to Montana Department of Natural Resources and Conservation (DNRC) regulations (Administrative Rules of Montana (ARM) 36.21.810).
- DEQ requires your (Talen's) consultant to be on-site for well abandonment to ensure the safety of all personnel, to ensure the appropriate wells are abandoned, and to document the abandonment of the wells (Administrative Rules of Montana (ARM) 36.21.810).
- Submit a letter report that includes a description of the well abandonment method and a copy of the well abandonment for each well abandoned.
- The letter report must be submitted to DEQ within 30 days of well abandonment and a copy submitted to the DNRC (Montana Department of Natural Resources and Conservation) according to their regulations.
- Use standardized DEQ WP (work plan) and report formats found under the Forms dropdown at the Petroleum Tank Cleanup Section (PTCS) webpage (<https://deq.mt.gov/cleanupandrec/Programs/petrocleanup>).
- Submit WP and reports electronically following the PTCS submittal requirements found online under the Guidance dropdown at the PTCS webpage (<https://deq.mt.gov/cleanupandrec/Programs/petrocleanup>).

Work can be initiated following written notification that DEQ has approved the scope of the work plan.

#### GENERAL INFORMATION

Facility Name Colstrip Steam Electric Station Facility ID 4489-21 Release # 562

Facility Address 601 Willow Ave, Colstrip, MT 59323

Owner/Operator Name: Talen Montana, LLC (operator)

Owner/Operator, if different from above: NA

Consultant's Name, Address, and phone number: Hydrometrics, Inc., 1175 S.25<sup>th</sup> St. W., Suite 1, Billings, MT 59102

List of monitoring wells by name and number to be abandoned: 808, 809, 810, 825, 825, 827, 828, 829, and 830

List of monitoring wells by name and number to be maintained: 811 & 812. These wells will be maintained and will be monitored for water levels at least once every three years in accordance with applicable regulations and accepted methods.

Specify the method by which the monitoring wells will be abandoned: See following Well Abandonment and Reporting Heading.

Target Date for abandonment of the monitoring well(s): 60 days after receiving written approval from DEQ. Note that the completion of the abandonment of the wells could be affected by weather conditions, ability to locate wells, access to wells and general site conditions (i.e. other facility work that could limit access).

Unit Cost per monitoring well for abandonment (Include Mobilization, Portland Cement, grout, or Bentonite, equipment, and consultant or contractor labor costs): \$669/Well \$ 30.80 to 31.54/ft.\*/ft  
Costs applied to release 562 are \$31.54 per foot, calculated by dividing the total estimated footage into total estimated cost.

\* Note that range in per foot abandonment is provided and the estimated range is based on variations in the depth of wells including those for Facility releases 332 (this release) and release 562, which is provided in a separate work plan. Abandonments will be completed during the same site visit to reduce overall costs to the extent possible. Billing will be conducted on a time and materials basis.

Total Cost of abandoning the above-listed monitoring wells: \$ 6,025 (Includes 10% contingency) \*

\*\* Billing will be conducted on a time and materials basis to cover unanticipated problems that may arise during well abandonment.

X I (Talen) elect to maintain the monitoring wells located at the above-referenced Facility and will monitor the wells at least once every three years in accordance with applicable requirements of the Montana Department of Natural Resources & Conservation Division.

X I elect to abandon the monitoring wells located at the above-referenced Facility and certify that the above-referenced monitoring wells are to be properly abandoned in accordance with the provisions in ARM 36.21.810 and other applicable requirements of the Montana Department of Natural Resources & Conservation.

Brian Sullivan  
\_\_\_\_\_  
(Signature of Facility owner or operator or authorized representative)

12/30/24  
\_\_\_\_\_  
(date)

#### WELL ABANDONMENT AND REPORTING

Monitoring wells identified previously in this document will be abandoned in accordance with guidelines set forth in ARM 36.21.810. Well abandonment and associated activities will be performed and supervised on-site supervised by a licensed Montana Water Well Contractor from Hydrometrics, Inc. Well abandonments for Facility 4489-22 (CSES) Releases 332 and 562 will be conducted in conjunction to reduce costs. This will eliminate the necessity for separate mobilization and demobilization costs associated with the project. It is anticipated that the abandonment work will require 2-3 days to complete necessitating overnight stays and per diem costs.

### **Monitoring Well Abandonment Methods**

A backhoe or similar equipment will be used to attempt to remove the PVC casing from each well. If the casing can be pulled, it will be lifted one to two feet off bottom. A weight will then be used to knock the bottom cap off the casing. After the bottom cap is knocked off, the casing will be pulled and 3/8" bentonite chips will be placed through the casing in the borehole from the bottom up. If the casing cannot be pulled, the casing will be filled with 3/8" bentonite chips, checking frequently to ensure bridging does not occur. Bentonite chips will be placed within one or two feet of ground surface.

Note that for some wells it may be necessary to purge water from the wells to prevent bridging as the bentonite chips are added. The wells that are to be abandoned are relatively low yield so an initial purging should be sufficient to lower water levels to workable levels throughout the placement of bentonite. As such, a purge pump has been budgeted. Water from the wells (4-8 gallons per well) will be distributed on the surrounding ground or asphalt surface or as a more conservative approach the water may be placed in the facilities oil/water separator.

Surface vaults will be left in place but filled with concrete, level with the existing surface. Wells with casing stickup will be filled to near ground surface. Stickup casing will be left in place until the final facility demolition, at which time the casing will be removed. Wells with stickups are adjacent to non-operational buildings near parking areas but can serve as bollards until their removal.

Abandonment logs will be completed and submitted to Montana DNRC as required.

### **Report Preparation**

A brief report will be prepared following the well abandonments. The report will include a description of abandonment methods, a list of wells abandoned, and abandonment logs. Site details, including maps for well locations, are included in the site Petroleum Mixing Zone report (Hydrometrics, December, 2020 – Petroleum Mixing Zone Summary Report for Release 562, Facility ID 44-08921, Work Plan 34059) and will not be included in the abandonment report.

### **Cost Estimate**

Costs estimated previously are based on 2024 approved rates. A 10% contingency has been included in the estimate and is expected to cover increases in material and labor costs for 2025. A spreadsheet with itemized estimates is included. Note that the range in per foot abandonment costs provided previously in this work plan reflect estimates for the entire set of wells to be abandoned for Releases 332 and 562, Facility ID 44-08922. The range in estimated costs reflects the difference in the depth of wells to be abandoned. A cost estimate spreadsheet follows at the end of this document. Note that abandonment and reporting costs are combined on the spreadsheet.

Reporting costs for the nine Release 562 wells are estimated at \$855.

Total estimated costs for abandoning and reporting are estimated at \$6,880.

Estimated Costs - Well abandonment - Facility 4489-22 (CSES) Releases 562												
Well Abandonment Cost Estimate												
Well Name	Total Depth ft	Casing Dia. in	volume cu ft	bags qty	Unit cost \$\$	Material Cost \$\$	Labor hrs	Unit Cost \$/hr	Labor Cost \$\$	Equipment hrs	Equip. \$\$	Total Cost \$\$
808	20	2	0.545139	0.77877	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 495.70
809	20	2	0.545139	0.77877	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 495.70
810	20	2	0.545139	0.77877	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 495.70
825	25	2	0.681424	0.973462	9.25	\$ 17	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 497.50
826	22	2	0.599653	0.856647	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 496.42
827	21	2	0.572396	0.817708	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 496.06
828	21	2	0.572396	0.817708	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 496.06
829	21	2	0.572396	0.817708	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 496.06
830	21	2	0.572396	0.817708	9.25	\$ 15	2.0	128	\$ 256.00	\$ 1.50	\$ 225.00	\$ 496.06
												\$ -
												\$ -
												\$ -
Associated Costs												
Mob/demob (half each to 332/562)							4.0	128	\$ 512.00			\$ 512.00
Mileage (half each to 332/562)							250.0	1	\$ 250.00			\$ 250.00
per diem (half each to 332/562)							1.0	250	\$ 250.00			\$ 250.00
Misc.(half each to 332/562)							1.0	50	\$ 50.00			\$ 50.00
Totals	191		total	6	20	\$ 107	270.0		\$ 2,854		Total	\$ 5,477
Totals + 10%			total +10%	6	22	\$118			\$3,139		Total +10%	\$ 6,025
									Abandonment		per well	\$669
									Abandonment		Per foot	\$31.54
Reporting and Documentation												
Report - Senior Technician							4.0	128	\$ 512.00			\$512
Log forms - Senior Administrative Assisstant.							2.3	118	\$ 265.50			\$266
REPORTING AND DOCUMENTATION												\$778
REPORTING AND DOCUMENTATION (includes 10% contingency												\$855
Total abandonment and Reporting											\$6,880	